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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,692	12/21/2000	Nadim Khlat	SC0815ET	9801

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Motorola, Inc.
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EXAMINER	
LE, NHAN T	

ART UNIT	PAPER NUMBER
2685	5

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/746,692	KHLAT ET AL.	
	Examiner	Art Unit	
	Nhan T Le	2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16 and 18* is/are rejected.

7)☒ Claim(s) *17 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in European Patent Office on 12/23/1999. It is noted, however, that applicant has not filed a certified copy of the 99403266 application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 2, 3, 4, 7, 9, 10, 11, 12, 13, 15, 16, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hellberg (US 6,337,885) in view of Ostman (US 6,069,923).

As to claim 1, Hellberg teaches a communications receiver for detecting and demodulating radio signals carrying information which has been encoded and modulated on a carrier, comprising:

means for subdividing the detected band into sub-bands (see fig. 5, numbers 34, 36, 40, 42, col. 6, lines 4-21);

means for superimposing the sub-bands into a plurality of components with a bandwidth similar to the bandwidth of the sub-bands (see fig. 5, numbers 46, 48, 50, 52, col. 6, lines 35-56);

means for processing that portion of the information contained in each component separately (see fig. 5, numbers 46, 48, 50, 52, col. 6, lines 35-56); and

means for combining the processed information from the components to reconstruct the original information transmitted (see fig. 5, number 62, col. 6, line 57- col. 7, line 7).

Hellberg fails to teach a dual mode communication receiver for detecting and demodulating radio signals carrying information which has been encoded and modulated onto a carrier of either wide or narrow bandwidth for transmission. Ostman teaches the dual mode communication receiver for detecting and demodulating radio signals carrying information which has been encoded and modulated onto a carrier of either wide or narrow bandwidth for transmission (see Abstract, see col. 5, line 43- col. 6, line 45). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Ostman into the system of Hellberg in order to enhance system performance which processes the wideband and narrow band input signals.

As to claims 2, 3, Hellberg teaches the means for dividing the detected band into sub-bands (see fig. 5, numbers 34, 36, 40, 42, col. 6, lines 4-21) comprises mixing the radio signal with a single local oscillator output to downconvert the radio signal to the frequency at which the processing is to occur and subsequently dividing the downconverted signal into components with bandwidth equal to the sub-bands for independent and simultaneous processing.

As to claim 4, Hellberg teaches the means for dividing the detected band into components with bandwidth equal to the sub-bands (see fig. 5, numbers 46, 48, 50, 52, col. 6, lines 35-56) further comprises mixing the downconverted signal with locally generated signals to produce the components.

As to claim 7, Hellberg teaches the means for processing that portion of the information contained in each of the components with bandwidth equal to the sub-bands comprises an analog to digital converter (see fig. 5, numbers 38, 44, col. 6, lines 35-38).

As to claim 9, the claim is rejected for the same reason as stated in claim 1 above.

As to claims 10, 11, the claims are rejected for the same reason as stated in claims 2, 3 above.

As to claim 12, the claim is rejected for the same reason as stated in claim 4 above.

As to claim 13, the claim is rejected for the same reason as stated in claim 7 above.

As to claim 15, Hellberg teaches the communications receiver adapted to receive and process information transmitted on band carrier having In-phase-Quadrature-phase (IQ) modulation, comprising:

means for detecting a portion of the spectrum to encompass the band carrier (BW) (see fig. 1, numbers 16, 18, col. 3, line 55- col. 4, 14);

means for converting the band carrier to baseband in I and Q components, each component having a bandwidth of BW/2 (signal IF is divided by two separated branches; f1; f2; see fig. 5, numbers 34, 36, 40, 42, col. 6, lines 4-21);

means for converting the I and Q components into further I and Q components to form components II, IQ, QI, and QQ, where each of the components has a bandwidth BW/4 and may contain a portion of the originally transmitted information (f1; f2; each is divided by other two branches; blocks 48; 52; see fig. 5, numbers 46, 48, 50, 52, col. 6, lines 35-56);

means, in a band mode for separately processing each of the components to extract portions of the originally transmitted information (see fig. 5, numbers 46, 48, 50, 52, col. 6, lines 35-56), and

means, in a band mode for separately processing each of the components containing information within the band transmitted carrier to extract portions of the originally transmitted information (see fig. 5, numbers 46, 48, 50, 52, col. 6, lines 35-56), and

means for recombining the extracted information to reconstruct the originally transmitted information (see fig. 5, number 62, col. 6, line 57- col. 7, line 7).
Hellberg fails to teach the communications receiver adapted to receive and process information transmitted on either wide band carrier or narrow band carrier having In-phase-Quadrature-phase (IQ) modulation. Ostman teaches the communications receiver adapted to receive and process information transmitted on either wide band carrier or narrow band carrier having In-phase-Quadrature-phase (IQ) modulation (see

Abstract, col. 5, line 43- col. 6, line 45). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Ostman into the system of Hellberg in order to enhance system performance which processes the wideband and narrow band input signals.

As to claim 16, the claim is rejected for the same reason as stated in claim 15 above.

As to claim 18, Hellberg teaches Digital gain and phase correction for the four components is performed in combination with the complex mixing with the digital local oscillator during the recombination process (see fig. 5, number 62, col. 6, line 57- col. 7, line 7).

2. Claims 5, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hellberg (US 6,337,885) in view of Ostman (US 6,069,923) and in further view of Hyatt (US 5,053,983).

As to claim 5, the combination Hellberg and Ostman fails to teach the mixing with the locally generated signals uses multiplier DAC's with the digital input driven by the low frequency digital local oscillator signals. Hyatt teaches the mixing with the locally generated signals uses multiplier DAC's with the digital input driven by the low frequency digital local oscillator signals (see col. 226, lines 5-37). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Hyatt into the system of Hellberg and Ostman in order to generate the product signal as analog signal (see col. 226, lines 15-17, as suggested by Hyatt).

As to claim 6, the combination Hellberg and Ostman fails to teach the multiplier DAC's provide Gain Control for Automatic Gain Adjustment. Hyatt teaches the multiplier DAC's provide Gain Control for Automatic Gain Adjustment (see col. 151, line 54-col.152, line 11). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Hyatt into the system of Hellberg and Ostman in order to enhance precision (see col. 151, line 56-57, as suggested by Hyatt).

3. Claims 8, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hellberg (US 6,337,885) in view of Ostman (US 6,069,923) and in further view of Lee (US 6,157,329).

As to claim 8, the combination of Hellberg and Ostman fails to teach the analog to digital converter is a sigma-delta analog to digital converter with a programmable oversampling ratio for Wideband or Narrow band conversion. Lee teaches that the analog to digital converter is a sigma-delta analog to digital converter with a programmable oversampling ratio for Wideband or Narrow band conversion (see col. 1, line 13-37). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Lee into the system of Hellberg and Ostman in order to permit high speed signal processing (see col. 1, lines 14-17, as suggested by Lee).

As to claim 14, the claim is rejected for the same reason as stated in claim 8 above.

Allowable Subject Matter

Claims 17, 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claim 17, the applied reference fails to teach the paths of two components are disabled in Narrow band mode as specified in the claim.

As to claim 19, the applied reference fails to teach Phase discontinuity is removed by phase shifting the digital local oscillator during the recombination process as specified in the claim.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Den (US 5,642,358) teaches multiple beamwidth phased array.

Torri (US 6,219,534) teaches radio communication apparatus.

Loke (US 6,675,024) teaches system and method for receving analog and digital signals.

Glas (US 6,330,290) teaches digital I/Q imbalance compensation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T Le whose telephone number is 703-305-4538. The examiner can normally be reached on 08:00-05:00 (Mon-Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on 703-305-4385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Nhan Le

1_16_2004

NGUYEN T. VO
PRIMARY EXAMINER